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Datura intoxication in West Cornwall

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Recent reports in the local[1] and national press and on radio and television have highlighted the abuse of certain datura trees growing in West Cornwall. The species are of South American origin and include *Datura sanguinea* (figure), *D cornigera*, and *D aurea*.

The Solanum family, to which the genus Datura belongs, includes a great number of plants conspicuous for their hypnotic properties, among them the mandrake (*Mandragora officinarum*), deadly nightshade (*Atropa belladonna*), and henbane (*Hyoscyamus niger*). These plants have been used from antiquity as intoxicants and medicines and contain various alkaloids of the tropane configuration. A remarkable feature about them has been the independent discovery in remote parts of the world of their hallucinogenic effects, which have been attributed to magic or supernatural agencies and have caused them to be regarded with dread. Scarcely less striking has been the independent use of distinct species in both the Old World and the New in religious ceremonies, especially in oracular divination, the discovery of hidden objects, and foretelling future events.

Some of the most unusual members of the genus Datura are found in the Andean highlands and adjacent areas. All belong to the subgenus Brugmansia and are arborescent with trumpets of white, yellow, or sanguine flowers hanging in abundance among the branches. They have pendulous indehiscent fruit, which contrasts in form with the erect four-valved capsule of the thorn apple (*D strammonium*).

It was ancient practice among the Chibcha Indians of Colombia to administer *D aurea* to wives and slaves of a departed husband or master and then bury them alive with the deceased. The priests of the Temple of the Sun at Sogamoso used *D sanguinea* to prepare a local drink known as tonga, which, when ingested, was thought to bring them into communication with the spirits of their forefathers. Several other bizarre practices still remain.

In the mild climate of Cornwall these tree daturas flourish as ornamental shrubs. Misuse of them has been widespread and we report the clinical features of six cases that required admission to hospital.

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The intoxicating tonga plant, *Datura sanguinea*.

Case histories

Five people, aged from 17 to 34 years, had eaten the leaves, while the sixth, a 17-year-old girl, had used them to brew a tea. Four of the cases had imbibed unknown quantities of alcohol first and four had a history of drug abuse. The main clinical features on admission are shown in the table.

The visual hallucinations were apparently without vivid colours or geometric distortion, and objects seen included spiders, trees, and snowdrifts. A particular feature was the tendency to pick imaginary objects from the bedclothes and surrounding curtains. Treatment of the poisoning consisted of gastric lavage and sedation with intramuscular or intravenous diazepam. All cases recovered within 36 hours.

Discussion

The principal alkaloids contained in the tree daturas are atropine, hyoscine, and hyoscyamine with hyoscine predominating. Other species contain these alkaloids in different proportions. Initial treatment of poisoning is gastric lavage. Delirium and coma can be reversed with physostigmine

Clinical features on admission

Clinical feature	No of cases
Dilated pupils	6
Visual hallucinations	6
Oropharyngeal dryness	5
Disorientation	4
Delirium	3
Paranoia	3
Ataxia	3
Tachycardia*	3
Raised systolic blood pressure†	3
Fever	2
Exaggerated tendon reflexes	2
Anxiety	2
Flushed appearance	1
Euphoria	1
Drowsiness	1
Amnesia	1

*Pulse rate >100 per min.
†>140 mm Hg.

salicylate, 1 to 4 mg (0·5 to 1 mg in children), by slow intravenous injection every one to two hours, and repeated doses may be required; but we did not find it necessary to use this drug in our cases. Sedation should be with parenteral diazepam or chlormethiazole and not with phenothiazines, which may intensify the toxicity of the psychosis on account of their antimuscarinic activity.[2]

Intoxication by datura is common in the USA, where it is used by adolescents and young adults as a legal and readily available hallucinogen.[3] Recently attention has been drawn to the increasing reports from Britain of abuse of strammonium-containing asthma remedies.[4] An account of thorn-apple (*D strammonium*) poisoning in Australia emphasises the existence of a cult in one community, with devotees using the drug to achieve altered states of consciousness.[5] This apparently began with the wide circulation of a paperback, *The Teachings of Don Juan*,[6] in which the use of hallucinogenic plants is extolled and the preparation of extracts from datura detailed. This book is readily available in libraries and bookshops throughout Britain and is constantly in demand. Several cases of poisoning in children in West Cornwall has resulted in local action to cut down datura trees. Other natural and over-the-counter sources of the antimuscarinic drugs remain, however, and will be liable to abuse.

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Mecillinam in enteric fever

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Summary and conclusions

Twelve consecutive patients with enteric fever entered a trial of 14 days' treatment with mecillinam. Only three patients became afebrile within three days; four continued unimproved with fever and toxaemia for seven to nine days, when treatment was changed to chloramphenicol with good results. In one case the fever did not settle until the 13th day, and five days later the patient had a clinical relapse.

Although all organisms recovered were fully sensitive to mecillinam, this drug is not an effective or consistent treatment for enteric fever.

Introduction

Preliminary studies[1-3] indicated that mecillinam, a new β-lactam amidinopenicillanic acid antibiotic, may be an important alternative to chloramphenicol for enteric fever. We have carried out a trial of this drug on 12 patients and report our results.

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Patients and methods

Twelve consecutive patients with enteric fever and aged 9-37 years were studied (see table). Blood, stool, and urine were cultured on admission, blood cultures being repeated if fever persisted despite treatment. Eight patients had typhoid fever and four paratyphoid fever. In all but one case the clinical diagnosis was confirmed by isolation of the organism from the blood. In the remaining patient (case 7) it was based on the typical illness with positive stool and urine cultures and a highly suggestive Widal test result. This patient had a double infection with *Salmonella paratyphi A* and *B*. Mecillinam was given initially by intramuscular injection in 10 patients and in the event of a satisfactory clinical response changed to oral pivmecillinam. Two patients who were not unduly ill received oral treatment throughout. The planned duration of treatment was 14 days. Full blood counts, liver function tests, and measurement of serum urea and electrolyte concentrations were carried out before, during, and after treatment in most cases.

Results and comments

Defervescence is generally accepted as the best indication of response to a drug in enteric fever. With chloramphenicol this is usually achieved within two to five days.[4] In our series (table) only three patients (cases 1, 6, and 8) showed a prompt response and became afebrile within this period. A further four patients (cases 3, 7, 10, and 12) were afebrile in six to eight days. Four patients (cases 2, 4, 9, and 11) continued unimproved with fever and toxaemia for seven to nine days; the treatment was then changed to chloramphenicol, and the fever settled in two to four days. In case 5 the toxaemia improved but the fever did not settle until the 13th day, and five days later the patient suffered